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OVERVIEW.

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DESCRIPTORS- *LANGUAGE RESEARCH, *BEHAVIORAL SCIENCE RESEARCH, *PSYCHOLINGUISTICS, CHILD DEVELOPMENT, LANGUAGE DEVELOPMENT,

THIS OVERVIEW CHAPTER INTRODUCES THE FORTHCOMING "DEVELOPMENTS IN APPLIED PSYCHOLINGUISTICS RESEARCH," S. ROSENBERG AND J.H. KOPLIN, EDITORS, WHICH WILL BE PUBLISHED IN 1968 BY MACMILLAN COMPANY. IT WAS DESIGNED TO SERVE AN INTEGRATIVE FUNCTION--TO IDENTIFY SOME OF THE MAJOR IDEAS AND CONCERNS OF THE CONTRIBUTORS, TO IDENTIFY SOME OF THEIR SIMILARITIES AND DIFFERENCES, AND, WHERE IT SEEMED USEFUL, TO ELABORATE UPON AND DISCUSS SOME OF THE IMPLICATIONS OF THEIR WORK IN THE CONTEXT OF CURRENT PSYCHOLINGUISTIC THEORY AND RESEARCH. IN ADDITION TO THE EDITORS, OTHER CONTRIBUTORS DISCUSSED IN THIS OVERVIEW ARE WILLIAM J. GRIFFIN, HARLAN L. LANE, RICHARD L. BLANTON, HAROLD GOODGLASS, RUE L. CROMWELL, PAUL R. DONECKI, AND JOSEPH E. SPRADLIN. (AMM)

Overview[1, 2]

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This overview chapter was designed to serve an integrative function: to identify some of the major ideas and concerns of the contributors, to identify some of their similarities and differences, and, where it seemed useful, to elaborate upon and discuss some of the implications of their work in the context of current psycholinguistic theory and research. For purposes of continuity, there is some overlap here with Dr. Koplin's introductory remarks, however, it should be understood that any inaccuracies that might appear below in the characterization of a contributor's work are the sole responsibility of the present writer.

Clearly, many language disorders are developmental in nature, i.e., they represent either failures (of varying types and degrees) to develop normal linguistic competence-performance skills or a slowdown of the language acquisition process. In addition, it is impossible to consider the problem of second-language learning without first asking some questions about first-language acquisition, and, what is more, there even appears to be a tendency to consider such disorders as aphasia in the context of stages of normal language development (Jones & Wepman, 1965). For these sorts of reasons, Dr. Griffin's paper on the development of grammatical behavior appears as the first chapter in this volume, and the present overview is presented mainly in the context of current theoretical views of language acquisition.

The current interest among developmental psycholinguists in the early stages of language acquisition is reflected in the amount of space Dr. Griffin devotes to a critical review of the relevant literature. However, motivated by the interests of the field of English pedagogy, he also addresses himself to the frequently neglected problem of the development of syntactic behavior in older children with a review of his own work (with O'Donnell and Norris) and the work of others. His general interest in the syntactic component of language reflects the view that the major challenge to students of language development is to account for acquisition of the "creative" aspect of linguistic competence, i.e., the ability to generate and understand novel utterances--the aspect of competence for which syntax is the vehicle.

Dr. Griffin's observations of the syntax of grade school children lead him to conclude that there is considerable growth in the use, for

example, of specific transformations during the years of childhood, but that the rate of growth is uneven, i.e., there are periods that are marked by "...relatively great development of syntactic control..." What this last observation does, of course, is to raise the question for research of whether there are, as Dr. Griffin puts it, "...sensitive periods in older children's development when they are unusually apt at expanding their syntactic repertoires."

It is Dr. Griffin's feeling that research on the acquisition of syntax will probably be accelerated under the influence of the view that there is a strong innatebiological component to language acquisition. Because of the influence this view is having in the field of language acquisition, and in the field of cognitive growth in general, an attempt has been made below to characterize the theory, to identify some of its implications for problems of applied psycholinguistics, and to discuss some of the work of the contributors to the present volume in the context of this view.

The theory of an Innate Language Acquistion System

The impetus for the development of the theory has come not only from detailed observations but also from such generalizations about language as (a) a natural language--a system of enormous complexity--is acquired in a very short period of time; (b) no special training is needed for language acquisition; (c) at least within normal limits, language acquisition is independent of intelligence level; (d) certain linguistic phenomena are universal, i.e., they are found in all languages known to man; (e) natural languages contain features--deep structures--which are not marked in the surface structures derived from overt language behavior; and (f) language as we know it is acquired only by man.

The most detailed discussion of the idea of an innate language acquisition system (ILAS) is to be found in a recently published book by Lenneberg (1967), while the influence of this view is perhaps nowhere better expressed than in the work of McNeill (1966). The characterization that follows, however, is derived mainly from Lenneberg's book.

1. The operation of the ILAS is facilitated by a general cognitive propensity for, as Lenneberg (1967) puts it, "categorizing and extracting similarities" from sensory inputs.

2. There is a specific cognitive component to the ILAS which includes, among other things, a predifferentiation of fundamental linguistic categories and relations (linguistic universals). This component of the ILAS results

essentially in a set to organize adult linguistic input in a manner that will reveal the structure of a native language.

3. While some of the universal characterisitics of natural languages appear to be related to the possession by man of a specialized receptor and effector system, the cognitive components (1. and 2.) are the most important components of the system.

4. The child is an active participant in the process of language acquisition rather than a passive recipient of instruction from the environment. This active participation takes the form in part of testing hypotheses about the structural characteristics of the local language. The motivation for this component develops through maturation.

5. The language acquisition process is activated by the utterances of adults, which then become the raw material for constructing the local language.

6. If the activation and operation of the ILAS is delayed, difficulties in language development will arise. In other words, there is a critical period in development for language acquistion.

7. The end result of the language acquisition process is a phonological, syntactic and semantic competence that makes possible the comprehension and production of an infinite number of linguistic utterances.

The process of language acquisition includes, then, according to this theory, a general cognitive component, a specific cognitive component, a receptor-effector (auditory-vocal) component, a motivational component that leads to active participation, an environmental component in the form of a corpus of adult language utterances, and a critical developmental (maturational) component.

In terms of our present interests, the theory implies that disorders of language development are likely to be associated with conditions that lead to disturbances of any one (or combination) of these components, and in fact one does find disorders of language development to be associated with such conditions (e.g., mental retardation, deafness, severe emotional disturbance and extreme environmental deprivation).

In the case of second-language learning the theory implies that there will be a decrease with age in the ability to acquire a language in the sense of involving the ILAS. This view is consistent with the observation that young children appear to be able to "just pick up" a second-language whereas older children and adults usually require some form of deliberate, detailed instruction, which frequently involves a much greater expenditure of time and effort than was the case with the acquisition of the first language.

One of the most interesting propositions of the theory is that the young child plays an active role in the process of language acquisition. Some of the data, perhaps the most dramatic data available, relevant to this proposition come from the observations of Ruth Weir, which Dr. Griffin discusses in his chapter.

Consistent with the notion of the central importance of the cognitive components in language acquisition, is the observation that there are profoundly deaf children who can learn to read, to produce and understand language through the medium of gesture (sign language), and in some instances to speak. However, as Dr. Blanton's work indicates, the language of the deaf child usually reveals a variety of deficiencies. Certain observations suggest that it is not just linguistic performance that is deficient but linguistic competence as well. According to Dr. Blanton, the creative aspect--the ability to generate and understand novel utterances--is often lacking in the language the deaf child learns through reading, and in its place one often finds evidence for reproduction of previously-experienced sequences. His observations lead him also to consider the notion of a critical period for language acquisition. In Dr. Blanton's words, "It may very well be that language retardation due to deafness cannot be fully compensated by educational effort concentrated in the later years of childhood." He emphasizes, nevertheless, the need for continued research into the possibility of developing a program for training generative language skills in the deaf. What is implied here, of course, is that such a program, if it did exist, might be more effective if administered during the years (from 1-1/2 to 3 years of age) when the normal child acquires language rather than during the later years of childhood.

An Alternative View of Language Development

There is, of course, an alternative to the biological view of language development--an alternative which, although a number of theorists have contributed to it, owes much of its appeal to the efforts of B. F. Skinner (1957). This view is usually referred to as the stimulus-response learning theory approach, and can be characterized in the main (without, it is hoped, doing too much violence to individual differences among theorists) in terms of the following propositions.

1. While it is generally recognized that damage to certain central and peripheral physiological structures may retard, or even make impossible, language development, language behavior (both first- and second-language behavior)

is primarily learned behavior, and is to be understood in terms of principles of conditioning (stimulus, response, contiguity, frequency, reinforcement, drive, generalization, discrimination, response differentiation, etc.), associative learning, transfer and mediation.

2. Language behavior is not qualitatively different from other forms of human behavior, nor from the behavior of lower organisms. Thus, principles de ived from the study of human non-linguistic behavior and the behavior of lower organisms are relevant to language behavior.

3. Experience shapes the development of overt language behavior, as well as the development of the way language is processed internally, through a process of imitation of and successive approximations to adult language behavior. In other words, it is primarily the environment that is active in the acquisition of language rather than the child.

4. Linguistic competence consists of a finite repertoire of learned responses and associatively-integrated response chains or sequences whose occurrence (performance) is under the control of specific internal and external environmental events. Linguistic performance, then, is viewed as being primarily reproductive rather than constructive.

While the proponents of the biological view might be willing to recognize the possible importance of certain learning principles in the development of linguistic performance, it should be clear that the two views we have attempted to characterize here differ strikingly in their conceptualizations of the development of linguistic competence. In addition, since, for the learning theory approach, language behavior is shaped by environmental events, disorders of language development should result from conditions that are associated with such environmental inadequacies as (a) the use of ineffective reinforcers, (b) insufficient reinforcement, (c) inadequacies in the model or models of adult language that the child is being reinforced for imitating, (d) reinforcement of language responses in the presence of inappropriate non-linguistic stimuli, and (e) failures to provide for reinforcement of certain language responses in the presence of a variety of stimuli so as to make generalization to a wide range of future situations possible.

However, in spite of the learning theorist's heavy emphasis upon the role of the environment in language development, it should be pointed out that this approach requires that the child must have the capacity to emit at least some approximation to a response in the adult language if the response in question

is to be reinforced, and that the child must possess the receptor capacities necessary for the perception of appropriate linguistic and non-linguistic stimuli.

As a final point, in the learning-theory approach language disorders associated with serious emotional disturbance in children would most likely be attributed mainly to the presence of responses that were incompatible with the behavior required for language learning.

The approach taken by Dr. Lane in the area of second-language learning and by Dr. Spradlin in the area of retardation fall clearly within the learning-theory tradition. According to Dr. Lane, the problem of second-language learning involves specification of terminal behaviors and identification through experimentation of the environmental variables that will strengthen these behaviors. This approach is exemplified in his work on the development of a computer-based system for conditioning prosodic accuracy in a second language. His commitment to the learning-theory approach is evident, for example, in the extent to which he emphasizes the importance of such factors as imitation and reinforcement in language acquisition, in his belief that the fundamental characteristics of speech perception are not "...peculiar to language behavior (see, for example, Dr. Lane's treatment of the polarity principle) but rather to discriminative behavior in general," and in his insistence that there is a point-to-point correspondence between stimuli and responses in any formal linguistic repertoire (e.g., the phonological repertoire).

Dr. Spradlin's observation of the incidence of language disorders among retarded children in all aspects of language functioning leads him to make the statement that "language and intelligence are terms which refer to overlapping referents." However, Dr. Spradlin's concern with the need to develop effective language training programs for the retarded does not appear to reflect the view that improvements in language functioning will result in improvements in intellectual functioning but rather a recognition of the importance of effective communication skills in daily living.

With respect, then, to the question of the relation between general cognitive development and language development, Dr. Spradlin appears to share the view of the proponents of an ILAS. In addition, it is doubtful whether those who favor the notion of an ILAS would disagree with Dr. Spradlin 's insistence that the typical institutional environment for the retarded is not conducive to normal language development. Since, however, in the remainder of his chapter, Dr. Spradlin emphasizes the importance of such factors as reinforcement,

stimulus control and imitation in language acquisition, he clearly favors a learning theory approach.

Dr. Spradlin's (and Dr. Lane's) view of the importance of imitation in language acquisition is to be contrasted with the position taken by Dr. Griffin who interprets the results of most of the research on the role of imitat language development (specifically syntactic competence and syntactic o mance) as indicating that overt imitation is not necessary.

Language Disorders in Adults

Dr. Goodglass in his chapter on grammatical disorders in aphasics and Drs. Cromwell and Dokecki in their chapter on schizophrenic language have addressed themselves to two of the major conditions associated with language disorders in adults, i.e., in persons who had already achieved normal linguistic competence and performance at the time the conditions in question developed. There is an interesting contrast to be made between these two conditions in that in the case of aphasia (as Dr. Goodglass' observations suggest), it appears that both competence and performance functions may be affected, whereas in the case of schizophrenia (as Dr. Koplin points out in his introduction to the chapter by Drs. Cromwell and Dokecki), it is likely that only performance is affected.

Dr. Goodglass' work represents not only an attempt to determine the reliability of clinical observations of grammatical disorders in aphasics but also the extent to which such disorders can be represented in terms of concepts taken from contemporary linguistic theory. One of the striking findings of his research is that there is greater overlap in the language behavior of agrammatic and fluent aphasics than clinical observation would have led one to anticipate. With respect, for example, to the use of grammatical rules in highly structured tasks, Dr. Goodglass concludes that

> A large number of grammatical tasks arrange themselves in an hierarchical order of difficulty which is essentially standard for all aphasics and which, where we have developmental information, follows the order of acquisition by children.

The last part of this statement of Dr. Goodglass' reveals another feature of his approach, namely, a tendency to consider language disorders in the context of normal language development.

Language disorders which result from changes in such psychological functions as memory, attention and motivation are said to be disorders of language performance. The language performance disorders associated with schizophrenia appear

to involve primarily the semantic component of overt language behavior, since they appear to take the form (as clinical and other observations suggest), for example, of idiosyn ratic associations, idiosyncratic word meanings, difficulties in categorizing words, and word repression (or blocking). Drs. Cromwell and Dokecki feel that a reasonable explanation of some of the features of the language behavior of some schizophrenics--they are quick to point out the limitations of their view--is that they are suffering from a general response disturbance which they call "...inability to disattend from stimuli." According to Drs. Cromwell and Dokecki, "Disattention is the adaptive ability of the organism, once having attended to a stimulus, to withdraw his attention from it."

A disattention deficit, if such were the case, is likely to be particularly debilitating in the case of language behavior because of the strong serial and hierarchic dependencies that characterize a natural language.

Conclusion

If there is one conclusion to be drawn from the contributions to the present volume it is that a union of basic research and theory with applied problems is possible, and, what is more, likely to result in healthy contributions to both. For example, the work on the syntactic behavior of older children is not only of interest to the field of English pedagogy, but also raises some basic questions about the course of normal language development, and the success of a learning-theory approach in the area of second-language acquisition is not only of practical importance, but represents a test of the generality of learning-theory principles.

We have, of course, dealt here only with those ideas and research findings which the present writer thought to be of particular importance; no attempt was made to deal with all of the detailed materials contained in each of the foregoing chapters. Similarly, in the characterizations of the two major approaches to the problem of language acquistion, there was no attempt to be complete. If the remarks contained in this overview are found to be of some use in relating the work of our contributors to the major trends of theory and research in contemporary psycholinguistics, the present writer's objectives will have been realized.

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Footnotes

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[2]To appear in S. Rosenberg & J. H. Koplin (Eds.), *Developments in applied psycholinguistics research*. New York: Macmillan Company, 1968.

DEVELOPMENTS IN APPLIED PSYCHOLINGUISTICS RESEARCH

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Editors

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